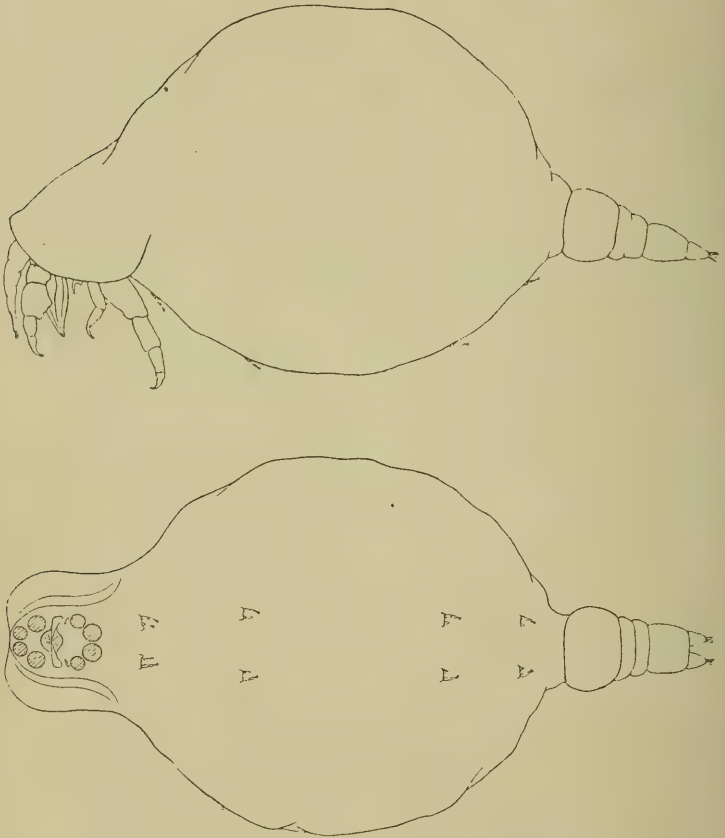


The third appendages (mandibles) are greatly reduced, being represented only by their basal segment, which extends inwards and downwards and fuses with the sides of the oral cone.



Obesiella lyonsiellæ.—From the left side and from below. $\times 38$.

In the lower figure the cephalic appendages are represented as cut off short.

The fourth appendages (maxillæ) are very small. The inner ramus is a flexible palp, and is terminated by two or three setæ; the outer has the form of a shallow eminence rising from the end of the ridge which represents the basal portion of the appendage. This is the only cephalic appendage in which any trace of the outer ramus is discernible.

The fifth appendages (first maxillipedes) are three-jointed, the terminal joint being a curved claw. They are the smallest of the three pairs of clawed appendages.

The sixth appendages (second maxillipedes) are the longest of the head appendages. There are four segments, the terminal one having the form of a sharp claw and being incompletely divided across.

The four pairs of thoracic appendages are biramous, but very small. The outer ramus is two-jointed, the proximal being larger than the distal joint. The jointing is not well marked in the two posterior pairs. Three or four short setæ occur at the tip of each outer ramus.

The inner rami, which arise from a basal ridge at a little distance from the outer rami, are also two-jointed. In the first thoracic appendages the distal joint is larger than the proximal and bears a few setæ. There is a papilla on the basal segment of the appendage lying to the inner side of the inner ramus. In the second pair the distal joint is larger than the proximal and has no setæ. In the third and fourth pairs the terminal joint is much smaller than the proximal and is incompletely divided from it. It has no setæ.

The genus falls naturally within the family Ascomyzontidæ. It differs from *Nicothoë*, Aud., in having the mouth set on a conical projection. It resembles *Ascomyzon*, Thorell, and *Uperogcos*, Hesse, in having five joints to the second cephalic appendages, and differs from *Asterocheres*, Boeck, which has four joints, and from *Dyspontius*, Thorell, *Artotrogus*, Boeck, *Platythorax*, Hesse, and *Ceratrichodes*, Hesse, which have three. It differs from *Uperogcos* and resembles *Ascomyzon* in that the oral cone is long and the second cephalic appendages are not antenniform; but it differs from *Ascomyzon* in that the first cephalic appendages are of moderate length and indistinctly segmented, whereas in *Ascomyzon* they are long and 20-jointed.

The extreme reduction of the four pairs of thoracic appendages is doubtless intimately associated with the swelling of the thorax, and is probably not shared by the male.

New and Old *Phalangiidæ* from the Indian Region. By
C. WITH, Copenhagen. (Communicated by H. J. HANSEN,
F.M.L.S.)

[Read 20th November, 1902.]

INTRODUCTION AND LIST OF SPECIES.

DRS. H. J. HANSEN and W. SÖRENSEN received the Indian Phalangiidæ herein described from the Indian Museum, Calcutta, by the kindness of Dr. A. Alcock, F.R.S., Curator of that Institution, to which they will ultimately be returned. Dr. Sørensen made some preliminary studies, but as he had no time to finish them, he and Dr. Hansen left the collection to me to work out. I take this opportunity of tendering these two gentlemen, but especially Dr. Hansen, my best thanks, for their kindness in assisting me in this and in other tasks. As will be seen from the following, I have had occasion to extend my knowledge by studying the animals of this group preserved in the Zoological Museum of Copenhagen, which Dr. Meinert has placed at my disposal. The greater part of this collection embraces Thorell's original species.

The genus *Gagrella*, the type of the subfamily Gagrellinæ, was founded by Stoliczka in 1869. Different naturalists have since his time contributed to the knowledge of the Indian harvestmen, but none more than the late T. Thorell. He described most of the recognized species and described them very well. His several papers form the basis for work on this section of the Indian fauna. Some of his genera are not very well founded, but we must remember that he based them on a relatively scanty material.

The following is a list of the Phalangiidæ from the Indian continent and adjacent islands and certain other localities.

NEW GUINEA.

Gagrella Albertisii, Thor. ; *G. Doleschallii*, Thor. ; *G. xanthostoma*, Thor.

PHILIPPINES.

Zaleptus inermis, Sim. ; *Gagrella elegans*, Sim. ; *G. obscura*, Sim. ;
G. luzonica, Loman.

AMBOINA.

Gagrella amboinensis, Thor.

BORNEO.

Zaleptus trichopus, Thor.; *Gagrella insculpta*, Pocock; *G. longipalpis*, Thor.; *G. scrobiculata*, Thor.; *Marthana columnaris*, Thor.

FLORES.

Gagrella atra, Loman; *G. tenuis*, Loman.

ARU.

Gagrella bipeltata, Thor.

JAVA.

Zaleptus trichopus, Thor.; *Gagrella insculpta*, Pocock; *G. albicoxa*, Loman; *G. (Melanopa) conspersa*, Thor.; *G. (Melanopa) Aurivillii*, Thor.; *G. celerrima*, Loman; *G. Lomanii*, Thor.; *G. ramicornis*, Thor.; *G. sepia*, Loman; *G. testacea*, Thor.; *G. variegata*, Dol.; *G. vestita*, Thor.; *G. viridis*, Dol.; *G. volcanica*, Dol.; *G. simplex*, Lom.; *Marthana cuspidata*, Loman.

SUMATRA.

Ceratobunus quadricornis, Thor.; *Zaleptus ramosus*, Thor.; *Z. simplex*, Thor.; *Gagrella acuaria*, Thor.; *G. albitarsis*, Sim.; *G. concinna*, Thor.; *G. ephippiata*, Thor.; *G. Hasseltii*, Thor.; *G. monticola*, Thor.; *G. pullata*, Thor.; *Platybunus minus*, Loman.

NIAS.

Gagrella niasensis, Thor.

NICOBARS.

Gagrella dentata, n. sp.; *G. imperator*, n. sp.

ANDAMANS.

Gagrella imperator var. *unispinosa*, n. sp.

CAMBODJA.

Systemocentrus quinquedentatus, Sim.

LOWER BURMA AND MALAY PENINSULA.

Zaleptus festivus, Thor.; *Z. subcupreus*, Thor.; *Z. sulphureus*, Thor.; *Gagrella binotata*, Sim.; *G. cervina*, Sim.; *G. Fecæ*, Thor.:

G. lepida, Thor. ; *G. quadrivittata*, Sim. ; *G. Stoliczkae*, n. sp. ;
G. bicornigera, Sim. ; *G. semigranosa*, Sim. ; *G. patalungensis*,
 Sim. ; *G. illusa*, Sim. ; *G. biseriata*, Sim. ; *G. atrorubra*, Sim. ;
Verpulus spumatus, Sim.

UPPER BURMA.

Arthrocentrus atratus, Thor. ; *Ceratobunus annulatus*, Thor. ; *C. bi-*
maculatus, Thor. ; *C. lugubris*, Thor. ; *Gagrella ænescens*,
 Thor. ; *G. armillata*, Thor. ; *G. chætopus*, Thor. ; *G. erebea*,
 Thor. ; *G. histrionica*, Thor. ; *G. laticlavia*, Thor. ; *G. minax*,
 Thor. ; *G. mirabilis*, n. sp. ; *G. nocticolor*, Thor. ; *G. (Melanopa)*
plebeja, Thor. ; *G. sordidata*, Thor. ; *G. spinulosa*, Thor. ;
G. (Melanopa) tristis, Thor. ; *Scotomenia cetrata*, Thor. ;
Oncobunus galeatus, Thor.

INDIA.

Hypsibunus vigilans, n. sp. ; *Ceratobunus brevipes*, n. sp. ; *C. cal-*
cuttensis, n. sp. ; *C. pulchra*, n. sp. ; *Zaleptus fuscus*, n. sp. ;
Z. hirsutus, n. sp. ; *Z. Thorellii*, n. sp. ; *Gagrella atrata*, Stol. ;
Zaleptus minutus, n. sp. ; *Gagrella crux*, n. sp. ; *G. fragilis*,
 n. sp. ; *G. Hansenii*, n. sp. ; *G. hirta*, n. sp. ; *G. Maindroni*,
 Sim. ; *G. nobilis*, n. sp. ; *G. signata*, Stol. ; *G. triangularis*,
 n. sp. ; *G. varians*, n. sp. ; *Syleus niger*, C. L. Koch.

CEYLON.

Gagrella bispinosa, Karsch ; *G. ceylonensis*, Karsch ; *Pseudarthro-*
merus spurius, Karsch.

CHINA.

Gagrella splendens, n. sp. ; *G. ferruginea*, Lom.

JAPAN.

Gagrella ferruginea, Lom.

LOCALITY UNKNOWN.

Hypsibunus diadematus, Thor. ; *Gagrella bidentata*, Thor. ; *G. docilis*,
 Loman (Corral?) ; *G. flavimaculata*, n. sp. ; *G. monacantha*,
 Herbst ; *Marthana turrita*, Thor.

DISTRIBUTION.

So far as we can see, the Indian continent and islands seem to a certain degree to be characterized by the *Gagrellinæ*. Other *Opiliones palpotares* are also known from India, viz.:

Platybunus mirus, Lom., from Sumatra, and *Pseudarthromerus spurius*, Karsch, from Ceylon; but since only a part, and perhaps a very small part, of the existing Indian species are known and hardly any from the neighbouring countries, and since the subfamily is a badly defined one, we must be careful not to over-estimate the importance of the geographical facts, and must particularly avoid drawing conclusions from them.

Dr. J. C. C. Loman has unfortunately done this. He writes in his paper ("Opilioniden der Sammlung Plate," Zool. Jb. Syst. 1899):—"Es ist hier auffällig, wie die Opilioniden aus der europäischen Familie der Phalangioidæ nicht in der unteren heißen Zone gefunden, sondern alle im Gebirge gesammelt wird. Aehnliches lässt sich von tropischen Afrika und Amerika zur Zeit freilich nur vermuthen, da genaue Höhenangaben fast nie vorliegen."

Certain facts seem now to contradict his first conclusion, as follows:—

(1) *Gagrella atrata*, Stol., and *Ceratobunus calcuttensis* are found in the neighbourhood of Calcutta, which certainly may be called a low-country locality.

(2) *Gagrella dentata* and *G. imperator* were taken by the 'Galathea' Expedition on the "Large" and the "Little" Nicobars. But the description of the voyage seems to prove that the members of the expedition did not penetrate far into the interior of the islands, and not at all into the mountains.

Loman's conclusion about the Indian Phalangiidæ must be regarded as too hastily formed and erroneous, and his last supposition is also incorrect, at least with regard to America, since Dr. Sörensen has informed me that he has taken specimens of the genus *Liobunum* near Riacho del Oro in Gran Chaco (Argentina), which is a plain.

CHARACTERS OF THE GAGRELLINÆ.

The subfamily *Gagrellinæ* was established by Thorell in 1889. The main differences between this section and the *Sclerosomatinae* (Sim.) are the following:—The cephalothorax and the first dorsal segments of the abdomen form in the *Sclerosomatinae* one hard scutum and the apertures of the stink-glands are not visible from above.

In the *Gagrellinæ*, on the other hand, only the abdominal segments are united to a scutum and the stink-gland apertures are visible from above.

The *Gagrellinæ* also differ from the *Phalangiinæ*, Sim., according to Thorell (10. p. 607), "quod tegumenta duriuscula habent, cephalothoracem e duabus partibus articulatione separatis compositum et etiam ab abdominis scuto dorsali, quod e 5 vel 6 segmentis coalitum est, articulatione divisum, coxas vero in marginibus serie densa lamellarum parvarum crenulatas." But these characters are not always limited to the *Gagrellinæ*.

The skin of *Liobunum rupestre*, Herbst, is rather hard, and the last segment of the cephalothorax is well separated, both from the rest of the cephalothorax and from the abdomen. The first segments of the abdomen are indistinct in *Liobunum rupestre*. The cephalothorax of species of *Acantholophus* is very distinctly separated into two parts. At least some species of *Liobunum* have marginal rows of teeth on the coxæ (viz., *L. rotundum*, Ltr., see Simon, 21. p. 173), and one species has them so well developed, that Simon has formed the genus *Cosmobunus* on this character (Simon, 21. p. 189).

Some other differences between the two subfamilies may also be mentioned.

The labrum of the *Gagrellinæ* is long and slender, in the *Phalangiinæ* it is triangular; *Liobunum rupestre* being in this respect most nearly akin to *Gagrella*. The procursus frontales of the *Gagrellinæ* are well developed and toothed, while they are small and smooth in the *Phalangiinæ*; but *Gagrella splendens*, for example, is in this respect similar to the last.

It seems thus a little difficult to draw a sharp line between the two subfamilies.

The *Phalangiinæ* are divided into two groups: (α) species similar to *Liobunum*, and (β) those which are most akin to *Phalangium*. The main characters of *Liobunum* are the small openings of the stink-glands and the shape of the penis; and the *Gagrellinæ* have both these characters in common with them (see Thorell, 10, and Loman, 14). Also in other characters they are similar to each other, though there are features common to *Liobunum* and *Mitopus*, Thor., viz., the presence of a tooth near the base of the antenna and the false articulations of the second tibia.

The following points of similarity are certainly not of very great importance, since they vary within the limits of the different genera and species; but they are perhaps the expression of a certain degree of relationship. The coxæ are toothed in at

least some species of *Liobunum*. The procursus maxillaris internus is well developed and two-branched in the *Gagrellinæ* and *Liobunum*, while in *Phalangium* it is a slightly marked projection.

It is thus evident that the limitations of the two subfamilies *Gagrellinæ* and *Phalangiinæ* fluctuate, and that *Liobunum* forms a connecting-link between the two.

Since I am not the most competent person to judge where the limits are to be drawn, and since Drs. Sørensen and Hansen have called my attention to several of the aforementioned facts, which make the subfamily of the *Gagrellinæ* an unnatural one, I would refer to the forthcoming paper, in which they record these and other important results of their investigations.

ON THE SYSTEMATIC AND SEXUAL CHARACTERS.

The shape of the cephalothorax varies but little. The last segment is always separated by deep articulations both from the rest of the cephalothorax and from the abdomen. The enultimate segment may be well marked, but it is never limited by an articulation in front. The tubercle is placed nearer or farther from the abdomen in relation to the development of the aforementioned segments, and the segments of the scutum are marked by transverse grooves on each side. The scutum is either unarmed or provided with a spine or tubercle. There is ordinarily one spine on the second segment; more rarely there is one on the first as well. In *Scotomenia* there is a tubercle on the first. The number of the spines is a very characteristic specific feature, but their generic value is relatively slight, and it seems to me impossible to found good genera upon their development, as Thorell has done. To this subject, however, I shall return. Their number varies also according to the species. In *Zaleptus minutus*, n. sp., there is occasionally an abdominal tubercle. *Gagrella imperator*, n. sp., has either two long or one long and one short spine.

The granulation of the body is variable, but of some systematic value. The body is very seldom pitted as it is in *G. sordidata*, Th., and ordinarily it is more or less granular. The granules are more or less crowded, larger or smaller, and flattish. Dorsally the scutum is almost always well granulated, the other parts more or less so; while the free ventral segments, with the exception of the lateral parts and the articulations, are generally smooth.

Gagrella dentata, n. sp., is almost completely smooth, but *G. (Melanopa) tristis* (Thor.) is granular all over. The sides of the cephalothorax are sometimes spinous (*G. spinulosa*, Thor.). The frontal eminence is in *Gagrella dentata* provided with a tooth directed forwards and upwards; in *G. sepia* (Lom.) there is a row of large granules in this position. The procurus frontales differ very much, but their shape has no specific value. The openings of the stink-glands are distinct and small. The ocular tubercle has a very great systematic value, at least within the limits of the genera. It is high or low; and the diameter of the eyes is either smaller or larger than the distance between their lower edges and its base. Its armature varies more or less, and must therefore be considered with caution (*cf.*, for ex., *Hypsibunus vigilans* and *Ceratobunus brevipes*).

The basal joint of the antenna is smooth or granular above. The "fingers" are provided with a larger tooth near the base and a crenulated edge, but their armature is sometimes a little different from what is customary, as, for example, in *G. hirta* and *G. triangularis*, in which one or both "fingers" are provided with a large tooth near the middle, with a succeeding smooth area and the usual crenulation.

The labrum (epistoma) is slender and pointed; it is sometimes in *G. triangularis* enlarged towards its extremity. The procurus maxillares are to a certain degree different in the species. The length and armature of the palps are important features, but on the contrary, while I do not think that the variations in length or absence of the apophysis of the patella are of much significance, I attach special value to the sexual differences of the palp. Such species as *Gagrella flavimaculata* and *G. splendens* can be very well distinguished by the palps of the males.

The length of the legs differs very much in the species and is a matter of importance.

The false articulations of the 2nd pair of tibiæ are often well developed, and the femora of these appendages in *Scotomenia cetrata*, Thor., and *Ceratobunus brevipes* have false articulations also. I believe, however, that Karsch (13. p. 308) much over-estimates the importance of this character, by founding his genus *Pseudarthromerus* upon it.

The colour has, of course, a certain systematic importance.

The difference between the males and the females is not so marked as in many other Phalangiidæ. It is difficult to distinguish

the sexes in the young animals, but in the fullgrown it is generally easy. The genital plate of the female is much more enlarged towards the base than that of the male, in which the sides are more nearly parallel.

The tarsi of the palps in the females are almost always smooth; those of the males are sometimes (ex. *Gagrella plebeia*, Thor., and *Zaleptus festivus*, Thor.) smooth, but generally provided with one or two rows of teeth or granules. Thorell has noticed this character in the male of *Ceratobunus annulatus*, Th. (10. p. 616). Two species (*Gagrella triangularis* and *G. flavimaculata*) have two rows of tarsal teeth (cf. *infra*, pp. 499–500). A great number have one single row along the inner lower edge, which begins near the base and extends over the distal two-thirds. The teeth or granules vary in number from 25 to 50 in different species and specimens, and are placed either close together or apart. In the latter case (ex. *Gag. ænescens*, Th., and *G. splendens*, n. sp.) the proximal teeth are always less separated than the distal.

The tibiæ of the males are, at least in two species (*G. ænescens*, Thor., and *G. splendens*, n. sp.), much thicker than those of the females.

While the younger females and the males are similar in their general aspect, the pregnant females are very characteristic. The whole body is much dilated and the segments, on account of this, are well separated from each other. This is chiefly noticeable upon the dorsal surface, as the tergal plates are granular, and the articulations smooth and often lighter in colour. The articulations between the dorsal and ventral segments are often so high, that the scutum has the appearance of a cap, which covers the top of the abdomen.

On the articulations between the dorsal and ventral segments small, more chitinous pieces are present. The ventral segments are separated into a central and two lateral parts, which are more or less distinct from one another, the lateral part of the first free ventral segment being the most developed, those following becoming gradually smaller.

The lateral parts are often granular. There is ordinarily no difference between the central and the lateral parts of the ventral segments in the males. *Gagrella Hansenii*, n. sp., is, however, an exception to this rule.

The colour and the length of the legs are sometimes a little different in the males and the females.

As will be seen later on, I am very doubtful as to the real systematic value of most of Thorell's genera, if the claim to systematic distinction be regarded as an expression of natural relationship. In the future, it may or may not be possible to establish good genera on the old characters or new ones. If it be not possible to do so, the only means of forming a system will be by comparing species, to find out their nearest relationships with regard to all characters and the facts of geographical distribution. But to do this we must have much more material.

DESCRIPTION OF GENERA AND SPECIES.

The genera *Hypsibunus*, Th. 1891, *Ceratobunus*, Th. 1889, and *Zaleptus*, Th. 1876, were each established by Thorell, and very well founded for his time; but when the Indian species are taken into account, they certainly fail. Let us first examine the difference between *Zaleptus* on the one hand, and *Gagrella* and *Melanopa* &c. on the other. The scutum of the first is always unarmed, that of the latter is provided with a spine or tubercle. The legs of *Zaleptus* are more or less long; the legs of *Gagrella* and *Scotomenia* are excessively long or short. *Zaleptus minutus*, n. sp., however, has rather short legs, and one of three specimens is provided with a very small, but distinct abdominal tubercle. The legs of *Ceratobunus brevipes* are almost as short as those of *Scotomenia*. The genus *Zaleptus* cannot be regarded as a natural one. The difference between *Zaleptus* and *Ceratobunus* lies in the dentition of the tubercle. *Ceratobunus* has, according to Thorell, two or four thorns on the tubercle, whereas the tubercle of *Ceratobunus brevipes* bears four or six; and as *Hypsibunus vigilans* has two or none, the definition becomes unsatisfactory (comp. Thorell, 12. p. 678).

The ocular tubercle of *Hypsibunus* is as high as broad; in *Zaleptus* and *Ceratobunus* it is lower; but since *Zaleptus hirsutus*, n. sp., and *Gagrella nobilis*, n. sp., have the tubercle almost as high as broad, I do not think that this character has much value.

Although I am convinced that the genera named have no systematic importance, I retain them for practical purposes.

HYPYSIBUNUS, Thorell, 1891.

H. diadematus, Th.—Tubercle armed with five teeth. Colour

black, spotted with white. The second pair of tibiæ are without white points.

HYPBIBUNUS VIGILANS, n. sp.

♂. Cephalothorax almost semicircular. The body is horizontal from the ocular tubercle to the fourth abdominal segment; but from that point it slopes abruptly downwards posteriorly. The body is granular above, but the cephalothorax and coxæ are less so. Free ventral segments smooth. Lamina frontalis well developed and separated into a right and left part by the short and toothed procurus frontales. Ocular tubercle, seen from the side, once and a fourth as high as long; its anterior face is perpendicular and higher than the posterior, its summit is beset with a few granules and in the middle by a stout obtuse perpendicular spine as long as the diameter of the eyes. Tubercle, seen from the front, at least as high as broad. Diameter of the eyes larger than the distance between them, and one-third of the distance between the lower edge of the eyes and the base of the tubercle. Basal joint of the antenna smooth. Procurus maxillaris internus two-branched. Femora of the palps spinous below; patellæ enlarged towards their ends and granular. Tibiæ twice as long as broad. Tarsi, as is usual in the males, armed with a row of small conical teeth near the inner edge. Femora of the legs spinous, and the legs very strong and long.

Femur I=12, II=22 (c. 100), III=12, IV=15 mm. Second joint of the antenna $1\frac{1}{4}$ mm. long. Length of the body 5 mm.

Colour of the upper surface blackish. Cephalothorax reddish brown in front of the tubercle. Two longitudinal bands between the tubercle and the front are most marked, and separated by a narrow black band, which is broadest in front. Lamina frontalis spotted with yellow. Sternal plate red with black margins. Free ventral segments yellow, with indistinct black spots. Antennæ and palps yellowish. Legs blackish brown, but lighter towards their ends. Articulations between the coxæ and the trochanters white; and the ends of the first pair of tibiæ are annulated with white.

Tubercle of the other specimen without eminence. Scutum bears a row of reddish-brown indistinct spots, and the black spots of the free ventral segments are distinct.

Two males from Silcurei.

CERATOBUNUS, *Thorell*, 1889.

- a.* Femora of the first pair of legs more than three times as long as the second joint of the antennæ.
- a*¹. Tubercle provided with two horns.
- a*². Femora with white rings; cephalothorax without white spots *annulatus.*
- b*². Femora without white rings; cephalothorax spotted with white.
- a*³. Scutum with a red longitudinal band *bimaculatus.*
- b*³. Scutum black, without band *lugubris.*
- b*¹. Tubercle with four horns.
- a*⁴. Points of horns biramous *pulcher.*
- b*⁴. Horns not biramous *calcuttensis.*
- b.* Femora of first pair of legs only three times as long as second joint of antennæ *brevipes.*

CERATOBUNUS ANNULATUS, *Thor.* 1889.

Thorell, (10) p. 616.

As observed by *Thorell*, the tarsi of the palps are in the males provided with the usual row of granules.

CERATOBUNUS BIMACULATUS, *Thor.*

Thorell, (10) 1889, p. 619.

Tarsi of the palps of the males provided with the usual row of granules, which in the proximal half are placed close to each other, in the distal farther apart.

CERATOBUNUS LUGUBRIS, *Thor.*

Thorell, (10) 1889, p. 621.

CERATOBUNUS PULCHER, n. sp.

Cephalothorax semicircular. The scutum is almost horizontal. The body, including the lamina frontalis and the base of the tubercle, densely granular. Free ventral segments smooth. The lamina frontalis is undeveloped; the procursus frontales are small, united and spinous.

Tubercle as high as long, and almost as high as broad; it is convex and bears two horns, directed forwards and backwards. They are both two-branched, but the branches are short. The foremost twice as long as the diameter of the eyes, the hindmost a little shorter than this. The tubercle is smooth and without groove. The diameter of the eyes is shorter than the distance

between the eyes, and than the space between the lower edge of the eyes and the base of the tubercle.

The basal joint of the antenna is granular. The femora of the palps are toothed below; the patellæ are enlarged towards their extremities and provided with a small apophysis. The tibiæ are twice and a half as long as broad. The femora of the legs are almost smooth.

Femur I=7, II=13, III?, IV=9½ mm. Body 3½ mm. The second joint of the antenna $\frac{3}{4}$ mm.

The body is black; the ventral segments are covered with a grey waxy material. The scutum is provided with a distinct red-brown, almost rhomboidal spot. The front part of the cephalothorax is on each side provided with a distinct white waxy spot. On each side of the abdomen behind the scutum there is placed a smaller similar spot. The antennæ and palps are yellow; the legs are light brown.

One specimen from Punkabari.

CERATOBUNUS CALCUTTENSIS, n. sp.

♀. Cephalothorax trapezoid, and body much raised towards the fourth segment of the scutum; behind this it slopes gradually downwards. The anterior third of the ventral segments (central parts) is raised and well separated from the rest. Body finely granular above. Coxæ with fewer and larger granules. Lateral parts of the first ventral segment also granular. Lamina frontalis not separated from the small and stout procurus frontales.

Tubercle, seen from the side, as long as high, and higher in front, and its sides are convex. Seen from the front it is almost as high as broad. The top, which is ungrooved, is crested with two long obtuse thorns on each side; the anterior is longer and directed forwards, the hindmost backwards. The eyes are small, and their diameter is less than the distance between the eyes and than the distance between their lower edge and the base of the tubercle.

Antennæ granular above. Procurus maxillaris internus two-branched, the upper branch slender, the lower very short and broad, its lower edge granular. Femora, patellæ, and tibiæ of the palps toothed, especially the femora, below; the patellæ with a small inner apophysis. Tibiæ twice and a half as long as broad, and the femora of the legs spinous.

Femur I=5 (leg)=22, II=11 (c. 45), III=5 (22), IV=8 (33½) mm. Body 4¼ mm. Second joint of the antenna ¾ mm. long.

Colour blackish brown; ventral segments reddish. Hindermost part of the abdomen has a reddish spot on each side. Antennæ yellow; palps brown with yellowish tibiæ and patellæ. Legs red-brown with darker patellæ.

One female from Calcutta.

CERATOBUNUS BREVIPES, n. sp.

♀. Cephalothorax triangular. Abdomen almost straight; the limitation of the scutum behind is not sharp, since the first free segment is more or less united with it. Body granular with the exception of the free ventral segments. Cephalothorax has the usual depressed triangle with curved depressions. Lamina and procursus frontales small. The tubercle is low, convex, as high as long; seen from the front, it is broader than high, and not narrowed at its base; its top is not grooved, but each side has an anterior and a posterior thorn, as long as the diameter of the eyes. Diameter of the eyes a little larger than the distance between them and than that from their lower edge to the base.

Basal joint of the antennæ granular above. Femora of the palps toothed below; the patellæ have a small apophysis, and chiefly the inner side is toothed. Tibiæ twice as long as broad, and provided on their inner side with teeth. Tarsi much longer than the femora. Femora have 3 to 5 false articulations and small teeth.

Femur I=3 (leg=14), II=5½ (27), III=3 (14), IV=5 mm. Body 4 mm. Second joint of the antenna 1 mm. in length.

Colour more or less yellowish-red with darker spots. A longitudinal lighter indistinct band runs along the abdomen; the space between the eyes is yellow. A narrow brown band between the tubercle and the front. Cephalothorax, and especially its last segment, beset with dark spots. Margins of the scutum and transverse spots black. Underside more brown with a transverse row of yellow spots on each segment. Antennæ and the palps yellow. Legs brown or yellowish, with small paler rings.

Tubercle of one specimen has on the right side a third thorn behind the second, on the left only a small tooth. The colour of this is darker than in the two other specimens.

Three females from Calcutta.

ZALEPTUS, *Thorell*, 1876.

- a.* Femora of legs either not hairy or beset only by few hairs.
- a*¹. Palps not smooth.
- a*². Legs very long.
- a*³. No yellow waxy spots on cephalothorax; tubercle smooth; colour yellowish white, with darker spots and a metallic appearance. *subcupreus.*
- b*³. Body more or less covered with a yellow waxy material, and the tubercle granular.
- a*⁴. Tibiæ white, and annulated at their points. Below the body bears a darker longitudinal band; cephalothorax in front with two yellow waxy spots. *festivus.*
- b*⁴. Tibiæ not annulated with white. Almost the whole body covered with a yellow waxy material *sulphureus.*
- b*². Legs rather short.
- a*⁵. Diameter of the eyes twice as long as the distance between their lower edge and the base of the tubercle. Tibiæ of palps twice as long as broad *fuscus.*
- b*⁵. Diameter of the eyes equal to the distance from their lower edge to the base. Tibiæ of palps three times as long as broad *Thorellii.*
- b*¹. Palps smooth *minutus.*
- b.* Femora of the legs hairy *hirsutus.*

ZALEPTUS SUBCUPREUS, *Thor.* 1889.

Thorell, (10) 1889, p. 609.

The row of tarsal granules is wanting in the males.

Two specimens from Kollads Salween Hill and Hungdarow.

ZALEPTUS FESTIVUS, *Thor.* 1889.

Thorell, (10) 1889, p. 611.

The tarsal row of granules is wanting in the males.

ZALEPTUS SULPHUREUS, *Thor.* 1889.

Thorell, (10) 1889, p. 614.

Hungdarow.

ZALEPTUS FUSCUS, n. sp.

♀. Cephalothorax almost semicircular. Last two segments of the cephalothorax well developed. Body raised towards the fourth abdominal segment, and the foremost third of the free ventral

segments is more raised than the rest, and the body is granular with exception of these.

Grooves between the segments of the scutum well marked. The cephalothorax has a well-marked depressed triangle.

Frontal eminence distinct; procurus frontales well separated, obtuse, and dentate. The tubercle is rather low, and seen from the side a little longer than high. The crest is convex. In front it is much narrower towards its base and much broader than high above. The top is deeply grooved and bears in front one single obtuse tooth. Diameter of the eyes as large as the distance between them, and twice as large as the distance between their lower edge and the base of the tubercle.

Basal joint of the antenna smooth. Procurus maxillarius internus almost square, as the usual lower branch is missing. The upper branch is pale and slender. The lower edge is granular. Femora of the palps shorter than the tarsi and spinous below and above. Patellæ a little broader towards their points and strongly toothed. Tibiæ twice as long as broad and inwardly spinous. Femora of the legs spinous.

F. I = $6\frac{3}{4}$ (leg = 30), II = $11\frac{1}{2}$ (54), III = $6\frac{1}{2}$ ($28\frac{1}{2}$), IV (?). Body $5\frac{1}{2}$ mm. The second joint of the antenna measures $1\frac{1}{4}$ mm.

Colour of the body black. Space between the eyes and the ventral segments lighter. Articulations yellow. Antennæ, the tarsi, and the points of the tibiæ of the palps yellow. Legs blackish, with the base of the femora and points of the tarsi lighter. Extremities of the second pair of tibiæ white.

One female from Calcutta.

ZALEPTUS THORELLII, n. sp.

♂, ♀. Cephalothorax semicircular. Body straight, the upper-side and the coxæ are finely granular. Ventral segments, some parts of the cephalothorax, and the lamina frontalis smooth. Cephalothorax bears a well-marked depressed triangle, open in front. Lamina frontalis undeveloped; the procurus frontales are large, broad, and strongly toothed. The tubercle is rather low, the upperside somewhat convex; the front and back almost straight, and seen from the side it is as long as high. It is surmounted by a single tooth behind, and four in front. Seen from the front it is broader than high and scarcely narrowed towards its base. The top is deeply channelled. Diameter of the eyes equals the distance between the lower edge of the eyes and the base of the tubercle.

Basal joint of the antenna smooth. Procursus max. internus broad and high, and has an upper process; the lower process is missing, and the lower edge is toothed. Femora of the palps toothed below; patellæ toothed chiefly above, broader towards their edges. Tibiæ three times as long as broad. Tarsi at their lower and inner edges bear the usual row of granules. Femora of the legs and partly their patellæ and tibiæ spinous.

F. I=6 (30), II=10½ (53), III=6 (30), IV=8½ (?) mm. Body 4 mm. Second joint of the antenna 1 mm. in length.

Cephalothorax yellowish, richly spotted with brown. Abdomen brownish with a metallic sheen. Genital plate and coxæ brown; the free ventral segments are greyish-brown, indistinctly spotted with white and black. Femora and the patellæ of the palps brownish, the terminal joints and the antenna yellow. Legs light brown, with the extremities of tibiæ 2 and 4 white. In the females the tarsi of the palps are smooth, the abdomen lighter and non-metallic; the dorsal segments bear a row of indistinct yellow spots.

Male and female from Berbhoom district.

ZALEPTUS MINUTUS, n. sp.

♀. Cephalothorax almost triangular. Abdomen flat, and falls gradually behind. Cephalothorax has the ordinary depressed triangle; and there is a longitudinal groove along the margin. Body bears few hairs and has large granules above; the coxæ and genital plate are almost, and the ventral segments completely smooth. Lamina frontalis well developed; the procurus are large, spinous, and separated. The tubercle is low and as high as long; the front edge higher than the back. Seen from the front it is broader than high and narrowed at its base. The top is convex and smooth, with the exception of a single anterior tooth. Diameter of the eyes equal to the distance between their lower edge and the base and less than the distance between them. Basal joint of the antenna granular. Labrum obtuse and pointed, with two short hairs. Proc. max. int. two-branched and low; the upper branch slender, the lower strong and recurved. Both upper and lower edge are sometimes toothed. The palps are broken away. Femora of the legs well toothed and hairy; tibiæ of all the legs bear false articulations. Legs brittle and femora beset with few hairs.

F. I=6, II=11, III=6, IV=9 mm. Body 3 mm. Second joint of the antenna measures $\frac{3}{4}$ mm.

Abdomen black above; cephalothorax and coxæ dark brown; free ventral segments lighter. Antennæ and legs reddish-brown.

♂. Second dorsal segment bears a low tubercle as in *Scotomenia*; except that in this species it is on the first segment. Palps very long and slender. Tibiæ and patellæ much longer than the femora, which are longer than the tarsi. Patellæ almost as long as the tibiae, enlarged towards their ends. Tibiæ four times as long as broad. Palps, including the tarsi, smooth; their length is $3\frac{1}{2}$ mm.

Colour red-brown above, with a broad longitudinal black band running through the abdomen. Palps yellowish-brown.

Colours of the two other specimens are as in the male.

Four specimens from Darjeeling.

ZALEPTUS HIRSUTUS, n. sp.

♀. Cephalothorax almost trapezoid. Abdomen oval. Body becomes higher towards the second abdominal segment and falls very gradually behind.

Segments of the scutum marked by distinct transverse grooves. Free segments separated from each other by broad articulations. Depressed triangle of the cephalothorax not distinct. The upper-side, including the base of the tubercle, bears large flat granules. Coxæ almost and the free ventral segments completely smooth. The whole body densely hairy. Lamina frontalis well developed, the procurus small, narrow, and toothed. Tubercle, seen from the side, much higher than long. The front face is the higher and slopes steeply forwards and downwards. The back is the lower and straight. Seen from the front, it is almost as high as broad, and narrowed at its base. Top provided with a low groove and crested with a row of strong teeth. Number of teeth different in each series and not placed in a regular row—but some nearer to, others farther from the middle line. Diameter of the eyes smaller than the distance between them, and one third of the distance between their lower edge and the base of the tubercle.

Basal joint of the antenna smooth or almost smooth above and twice as long as broad. Proc. max. int. low and two-branched—the upper branch pale and slender, the lower curved back and strong, with its lower edge bearing a few large teeth. Femora of the palps bear a few small teeth below. The terminal segments are broken away. Legs very brittle; femora almost smooth and hairy. All the tibiae have false articulations.

F. I = $5\frac{1}{2}$, II = $10\frac{1}{2}$, III = $5\frac{1}{4}$, IV = 7 mm. Body 4 mm. Second joint of the antenna measures 1 mm.

Body red-brown, the top of the tubercle black. The underside darker. The articulations are yellow; the legs and antennæ brownish.

Four females from Darjeeling.

GAGRELLA, *Stol.*, 1869.

I have already considered the difference between *Gagrella* and *Melanopa* on the one side, and *Zaleptus* on the other (*Zaleptus*, anteà, p. 474). I have retained the genera *Hypsibunus*, *Zaleptus*, and *Ceratobunus*, because they have a certain practical value in the synonymy of the group. This, however, is not the case with *Melanopa*. The differences between *Gagrella* and *Melanopa* according to Thorell (10. p. 659) are as follows:—

(1) The first pair of femora are never more than four times as long as the second joint of the antennæ; since, however, in the males of *G. atrata*, *Stol.*, they exceed this proportion, but do not reach it in the females, the character has no value in the definition of the genera.

(2) Femora of the legs in *Melanopa* not only enlarged towards the extremity from the middle, but from the base. This seems only a necessary consequence of the shorter legs, and is certainly of little value.

(3) Fourth pair of coxæ relatively broader towards their extremities than the third. I cannot confirm this character in *Gagrella Hansenii* and *G. varians*, which are *Melanopæ* according to Thorell's definition.

(4) Claw of the palps not dentate. In *Gagrella imperator* the teeth are almost wanting in some specimens but not in others. In *Gagrella Hansenii* they are well developed.

Since all the above characters are variable and insufficient for diagnosis of new species, I prefer to reject the genus *Melanopa* and refer its species to *Gagrella*; and I hope that the following synopsis will be of value, although it has defects, partly due to myself, partly to the vagueness of the original description. Many of the species I do not know, and of most of them I have had but one or two specimens—a very unfortunate fact when they vary, and it becomes necessary to use characters which are partly inconstant.

Synopsis of Species.

- a. Scutum bears one or two spines in a longitudinal row.
- a*¹. First pair of femora more than four times longer than the second joint of the antenna.
- a*². Tibiæ of palps at least four times as long as broad.
- a*³. Frontal eminence provided with a tooth .. *dentata*.
- b*³. Frontal eminence smooth.
- a*⁴. Tubercle smooth or almost smooth above.
- a*⁵. Tubercle higher than broad and long . *nobilis*.
- b*⁵. Tubercle more or less low.
- a*⁶. Cephalothorax more or less yellow.
- a*⁷. Abdomen with a longitudinal darker band.
- a*⁸. Cephalothorax yellow, with the exception of an indistinct black band between the tubercle and the front. One brown spine .. *crux*.
- b*⁸. Articulations of the cephalothorax black. Two black spines with yellow base *armillata*.
- b*⁷. Abdomen without longitudinal black band *lepida*.
- b*⁶. Cephalothorax black or brown.
- a*⁹. Legs yellowish-brown. Two spines. The tubercle is low with a few teeth in front. The scutum is granular. Joint 2 of antenna = $1\frac{1}{4}$ mm. F. I = 10; B. = $6-6\frac{1}{2}$ mm. *chatopus*.
- b*⁹. Legs black. Tubercle high and quite smooth. One spine. The scutum is pitted. Joint 2 of antenna = $1\frac{1}{2}$ mm. F. I = $8\frac{1}{2}$; B. = $4\frac{3}{4}-7\frac{1}{2}$ mm. *sordidata*.
- b*⁴. Tubercle toothed.
- a*¹⁰. Tubercle has only a few teeth in front. *sordidata*.
- b*¹⁰. Tubercle is crested with a longitudinal row of teeth.
- a*¹¹. Abdomen brown, with two spines and two yellow spots. Second joint of the antenna = $1\frac{1}{2}$ mm. F. I = 6; B. = $4\frac{1}{2}-6\frac{1}{4}$ mm. *minax*.
- b*¹¹. Abdomen brown or black, with one or two spines. The cephalothorax

- is sometimes provided with two white waxy spots. Second joint of antenna = 1 mm. F. I = 6; B. = $3-4\frac{1}{3}$ mm. *erebea*.
- b*². Tibiæ of palps not four times as long as broad.
- a*¹². Cephalothorax spinous on each side. Tubercle brown. A row of strong teeth around the eyes *spinulosa*.
- b*¹². Cephalothorax not spinous.
- a*¹³. Legs more or less hairy.
- a*¹⁴. Body brown with a darker longitudinal band through the scutum; antennæ and palps yellow, and the legs brown. *hirta*.
- b*¹⁴. Colour black. Antennæ and last two joints of the palps yellowish-brown *fragilis*.
- b*¹³. Legs either not hairy or with but few small hairs.
- a*¹⁵. Tubercle completely smooth above.
- a*¹⁶. Abdomen completely black.
- a*¹⁷. One or two lighter bands between the tubercle and the front.
- a*¹⁸. Tubercle yellow; one or two spines. A single lighter band between the tubercle and the front. Second joint of the antenna = $1\frac{2}{3}$ mm. F. I = 9; B. = $7\frac{1}{2}$ mm. *Fœa*.
- b*¹⁸. Tubercle black; two spines. Two yellow bands between the tubercle and the front. Second joint of the antenna = $1\frac{2}{3}$ mm. F. I. = $6\frac{3}{4}$; B. = $7\frac{1}{2}$ mm. *nocticolor*.
- b*¹⁷. No lighter band between the tubercle and the front *atrata*.
- b*¹⁶. Abdomen not completely black.
- a*¹⁹. Abdomen black with a yellowish longitudinal band. Tubercle high and in front granular below. Ventral segments bear transverse rows of granules *Maindrom*.
- b*¹⁹. Scutum bears a yellowish spot on each side before the spine [*hunneralis*].
- c*¹⁹. Abdomen black with yellow sides.
- a*²⁰. Whole body granular. A yellow band runs from the tubercle

- to the front and is continued abdominally as two marginal bands..... *signata*.
- b*²⁰. Body only partly granular. Scutum has four yellow longitudinal bands *quadrivittata*.
- e*¹⁶. Body blackish with a metallic or phosphoric shade. Joint 2 of the antenna = $1\frac{1}{2}$ mm. F. I = $10\frac{1}{2}$; B. = $4\frac{1}{9}$ mm. *evescens*.
- d*¹⁶. Body reddish or yellowish-brown.
- a*²¹. Tubercle, seen from the side, almost as high as broad. The abdomen reddish-brown with a longitudinal darker band. Joint 2 of the antenna = $1\frac{1}{2}$ mm. F. I = $10\frac{1}{2}$; B. = $4\frac{1}{2}$ -5 mm. *laticlavata*.
- b*²¹. Tubercle, seen from the front, almost twice as broad as high.
- a*²². Tubercle and palps completely smooth *rufescens*.
- b*²². Tubercle armed in front, under the eyes, with a row of strong teeth..... *Stoliczkae*.
- e*¹⁶. Body granular, with large and low granules, which are placed distant from each other. Colour greyish, with an abdominal longitudinal darker band; underside white, with darker spots. Tubercle smooth; palps toothed *mirabilis*.
- f*¹⁶. Brown with black spots *imperator*, var. [*unispinosa*, ♀.
- b*¹⁵. Tubercle more or less toothed above.
- a*²³. Abdomen more or less black.
- a*²⁴. Abdomen completely black.
- a*²⁵. No lighter band between the tubercle and the front *atrata*.
- b*²⁵. A lighter band between the tubercle and the front..... *Fœe*.
- b*²⁴. Abdomen not completely black.
- a*²⁶. Body black with exception of the brown antennæ and the terminal joints of the palps. Scutum on each side of the spine bears six yellow spots of a waxy nature *flavimaculata*.

- b*²⁶. Body black with exception of two yellow spots at the hindmost part of the abdomen. Tubercle with a row of granules. *binotata*.
- c*²⁶. Cephalothorax with a white triangle; scutum with two large white spots. Second joint of antenna 2 mm. long. F. I = 13½; B. = 8 mm. . . . *histrionica*.
- d*²⁶. Body black, with the exception of the usual triangle and a longitudinal yellow spot on each side of the spine [var. *fusca*, *triangularis*,
- e*²⁶. Scutum black, with a large waxy white spot in the front and a smaller one behind. One spine. The ventral segments are yellow with black spots. The coxæ are black *ceylonensis*.
- b*²³. Abdomen yellow or brown.
- a*²⁷. Body yellowish. Cephalothorax with a yellow spot in front. The spine, a spot at its base, and marginal spots black. Tubercle rather high and armed with a row of teeth. Second joint of the antenna 1½ mm. long. F. I = 14; B. = 5 mm. *cervina*.
- b*²⁷. Body bears one short spine. Tibiæ twice as long as broad. F. I = 8; F. II = 14; B. = 4½ mm. Colour yellow or yellowish-brown, and there is sometimes a more or less marked longitudinal darker band. Cephalothorax bears a yellow triangular spot, encompassing the tubercle. Palps, antennæ, and legs yellowish-brown or yellow *triangularis*.
- c*²⁷. Body armed with two long spines. Tubercle provided with teeth above. Colour reddish-brown *imperator*.
- a*²³. Tubercle provided with small teeth above *imperator*,
forma typica.

- b^{28} . Tubercle provided with larger teeth above and under the eyes. [var. *dentata*.
 d^{27} . Scutum reddish-brown. One black spine *imperator*,
[*unispinosa* ♂.
imperator, var.
 b^1 . First pair of femora not more than four times as long as the second joint of the antennæ.
 a^{29} . Tubercle provided with strong teeth around the eyes *plebeia*.
 b^{29} . Tubercle smooth or granulated.
 a^{30} . Body granular above and below *tristis*.
 b^{30} . Free ventral segments smooth.
 a^{31} . Body much raised towards the single spine *Hansenii*.
 b^{31} . Body not more raised than usual.
 a^{32} . ♀. Body completely black. Spine smooth. ♂. Terminal joints of the palps yellow *atrata*.
 b^{32} . ♀. Blackish-brown. Spine granular. ♂. Palps completely yellow *varians*.
b. Scutum with two spines in a transverse row. Tubercle smooth *bispinosa*.

GAGRELLA DENTATA, n. sp.

♀. Cephalothorax almost triangular. Scutum bears two very long spines: the first directed upwards and forwards, the second almost perpendicular. Body raised towards the first spine, and sloping behind the second. Penultimate segment of the cephalothorax narrow, the last is not so broad as the articulations between the cephalothorax and the scutum. Frontal eminence well developed and armed with a short distinct thorn, directed upwards and forwards. A distinct lamina frontalis is very well developed, triangular and spinous. Granulation of the body, with the exception of the well-granuled coxæ, so very little marked that it becomes smooth. Tubercle, seen from the side, rather high and convex, as high as long; seen from the front it is much broader than high. In front there is a thorn on each side of the groove, as long as the diameter of the eyes. There are two granules under the eyes, and the diameter of the eyes is much less than the distance between them, and greater than the distance between their lower edge and the base of the tubercle. Basal joint of the antenna almost smooth.

Procursus maxillaris internus long, slender, pointed, and pale; the upper branch very long, the lower very short; its lower

edge granular. Palps hairy but without teeth, with the exception of some very small ones on the patellæ and tibiæ. Patellæ long and enlarged towards their extremities. Inwardly there is a long slender apophysis, as long as the patellæ are broad. Tibiæ five times as long as broad. The legs are very long and slender; the femora spinous.

F. I=12 (53), II=24 (120), III=10 (45), IV=6 (70) mm. Body 5-7 mm. Second joint of the antenna $1\frac{1}{4}$ mm. long.

Colour white with some few dark spots. The procursus frontales, tubercle, and articulations are yellowish-brown. A longitudinal broad band from the first spine to the end of the abdomen is indistinctly brown. The top of the spines is black, the coxæ and genital plate brown, the ventral segments yellow with white spots on the side, the point of coxa 4 with a yellow spot in front. The antennæ and palps are yellow, the legs brown.

One full-grown female from "Large Nicobar."

Another specimen from Little Nicobar has no patellar apophysis. The procursus frontales are smaller. The colour is bluish-white, the longitudinal band yellow. The segments of the scutum are marked by a row of depressed dark spots.

The last specimen, also from Little Nicobar, is a little different from the other two. Instead of the frontal spine there is a short apophysis, armed with three short pointed teeth. Beneath this apophysis there is a short pointed tooth. The scutum is finely granular. Apophysis of the patella short. The femora of the palps bear an inner row of granules. Tubercle black.

This beautiful and odd species was taken by the Danish 'Galathea' Expedition.

GAGRELLA NOBILIS, n. sp.

♀ (?). Cephalothorax almost square; the scutum bears one thorn; the area between the ocular tubercle and the spine is almost plane. The upperside is densely and finely granular with the exception of the tubercle, spine, and free dorsal segment. The free ventral segments are smooth; coxæ partly smooth, partly beset with large distinct granules. The lamina frontalis is undeveloped; the procursus are small, narrow, well separated, and armed with few teeth. The tubercle is very characteristic; seen from the side it is somewhat higher than long, its upperside is almost flat; the front side sloping and higher than the back.

Seen from the front, the tubercle narrows beneath the eye and is as high as broad. The crest is grooved and provided with five long hairs on each side. Diameter of the eyes both less than the distance between them, and than the space from their lower edge to the base of the tubercle.

Basal joint of the antenna once and a half as long as broad, and smooth. Procursus max. internus two-branched and pale; its lower edge bears dark teeth. The femora of the palps are as long as the tibiæ + patellæ and the tarsi. Beneath and at the base of the patellæ they are toothed. Patellæ hairy and toothed. Tibiæ four times as long as broad. Tarsi with few teeth below, and the femora of the legs hairy and with the usual small teeth.

F. I=9 (46), II=17, III=8 (43), IV=12 mm. Body 4 mm. Second joint of antenna $1\frac{1}{2}$ mm. long.

On both sides of the tubercle the body is white; the hindmost part of the cephalothorax and the abdomen is yellowish and brown, the three colours merging into each other. A dark depressed spot on each side of the tubercle. Tubercle black, and connected with the front by a broadening black band. Five or six light yellow spots are placed in a row on each side of the scutum near the middle. Last two free dorsal segments black, with a longitudinal white spot on each side. Free ventral segments yellowish-white with indistinct black spots. First pair of coxæ white, the second black, the third and fourth white at the base, and black spotted with yellow at their extremities. The trochanters and the femora of the palps are black; their terminal joints, the antennæ, and the mouth-organs are yellow, the legs brownish, and the points of the second and fourth tibiæ white. The spine is black.

One female (?) from Silouri.

GAGRELLA CRUX, n. sp.

♀. Cephalothorax almost triangular. Tubercle placed near the articulation, since the next last segment of the cephalothorax is small. The last segment well developed. The five segments of the scutum marked by darker transverse striæ. The body granular above, with the exception of some parts of the cephalothorax, the spine, and the tubercle; the coxæ are almost smooth, and the free ventral segments completely so. The cephalothorax

presents the usual depressed triangle. On each side along the margin there is a depressed groove, and near the tubercle a black depressed spot. Procursus frontales more or less separated and spinous. Tubercle low, convex, and longer than high, and seen from the side it is on each side beset with two small teeth. In front it is broader than high. There is the usual groove above. The diameter of the eyes is less than the distance between them, and larger than the space between their lower edge and the base of the tubercle.

Basal joints of the antennæ granular. Procursus max. int. two-branched and pale, the upper branch short or absent; the lower edge granular. The palps are slender and hairy, but without teeth, with the exception of the patellæ, which have a few at the side. Femora as long as the tarsi and shorter than the sum of patellæ and tibiæ. Patellæ have an inner apophysis, which varies very much in the different specimens, even in the two palps. It may be slender or stout, pointed or obtuse, well developed or almost absent. Tibiæ five times as long as broad.

Femora of the legs spinous, and the second pair of tibiæ with false articulations.

F. I = $7\frac{1}{2}$ ($32\frac{1}{2}$), II = $12\frac{1}{2}$ (64), III = $6\frac{1}{2}$ ($30\frac{1}{2}$), IV = $9\frac{1}{2}$ (45).
Body 3 mm. Second joint of the antenna $\frac{3}{4}$ mm. long.

Cephalothorax yellow, with the exception of some depressed spots and a more or less narrow indistinct band between the tubercle and the front. Tubercle brown, in front yellow. The segments between the tubercle and the black front margin of the scutum are black, the articulations lighter, and this black transverse band is continued along the margins of the scutum, through which there runs a longitudinal broad black band. Space between the central and marginal black bands yellow, but subdivided by four indistinct narrow transverse black bands denoting the segments. The first two free dorsal segments bear a central and two marginal black spots and two that are white. Genital plate and free ventral segments yellow; coxæ white with a brown base. Antennæ yellow, the second joint with transverse black spots. Palps and legs yellow with the exception of the black trochanters.

This species is similar to *G. lepida*, Thor., but differs in its colour and shorter legs.

Three females from Punkabari.

GAGRELLA ARMILLATA, *Thor.*

Thorell, (10) p. 629.

G. LEPIDA, *Thor.*

Thorell, (10) p. 626.

The tarsus of the palps of the males is smooth.

G. CHÆTOPUS, *Thor*

Thorell, (10) p. 631.

G. SORDIDATA, *Thor.*

Thorell, (10) p. 634.

The tarsus of the palps of the male is smooth.

G. MINAX, *Thor.*

Thorell, (10) p. 638.

The tarsus of the palps of the male is smooth.

G. EREBEA, *Thor.*

Thorell, (10) p. 636.

♂. The femora of the palps alone bear small teeth. The patellæ have no inner apophysis. The tarsi bear the usual inner row of granules, which are small and placed somewhat apart. Colour brown, with indistinct black spots above. Cephalothorax yellowish-brown. The articulations are yellow, the coxæ brown, and the ventral segments yellowish. Both sides of the cephalothorax in front and the coxæ partly covered with a white waxy material. Antennæ and palps yellowish-brown; the legs yellow.

As the male described here is in all other respects similar to *G. erebea*, Thor., and as it is one of Fea's original specimens, I conclude that the differences are only such as occur between males and females.

G. SPINULOSA, *Thor.*

Thorell, (10) p. 657.

The tarsi of the palps of the males are smooth.

G. HIRTA, n. sp.

♀. Cephalothorax almost square. Body somewhat raised towards the single spine, falling gradually behind. It is not very densely granular above, and the coxæ, the free dorsal segments, the spine, and the genital plate are less so. Lamina, procursus

frontales, tubercle, free ventral segments, and spots on cephalothorax smooth. Cephalothorax with the usual depressed triangle. The whole body is densely hairy, the "hairs" curved and yellow. Frontal eminence well marked. Procursus frontales well separated, small, and spinous at their points. The tubercle, seen from the side, is higher than long and convex, the front higher than the back. The top is convex and surmounted by a row of yellow hairs on each side of the groove. Seen from the front it is as broad as high, and narrows towards its base. The diameter of the eyes is as great as the distance between them, and a little less than the distance between their lower edge and the base of the tubercle.

Basal joint of antenna smooth, and almost twice as long as broad. Procursus maxillaris internus two-branched, the upper branch small and pale; the lower larger, with a granular lower edge.

Femora of the palps as long as the patellæ and tibiæ, but shorter than the tarsi; toothed below and above at the base of the patellæ. The patellæ are enlarged towards their extremities and densely toothed, chiefly on the inner side. Tibiæ twice and a half as long as broad and granular.

Femora of the legs strongly hairy.

F. I= $7\frac{1}{2}$ (35), II=13 (70), III= $7\frac{1}{2}$ (35), IV= $10\frac{1}{2}$ (50) mm. Body $5\frac{1}{2}$ mm. The second joint of the antenna is $1\frac{1}{2}$ mm. long.

Body light brown, with a longitudinal broad darker band through the abdomen. Cephalothorax has darker spots. Base of the tubercle brown; eyes and parts around them black. A yellow band, narrow in the front and broad behind, runs between the eyes. Coxæ and genital plate brown; the free segments are lighter. Antennæ yellow. Palps and legs brown; the latter are lighter towards their extremities.

One female from Punkabari.

GAGRELLA FRAGILIS, n. sp.

♀, ♂. Cephalothorax almost square. Abdomen raised towards the single spine. Segments separated from each other by broad articulations in the pregnant females, which also have the lateral parts of the ventral segments well developed. Cephalothorax presents the usual depressed triangle, open in the front. The upper side is granular; the coxæ and genital plate less densely granular. The articulations, the spine, the lamina frontalis, and

the last two dorsal segments are almost, and the free ventral segments are completely, smooth. Frontal eminence indistinct, and only bears a few large granules. Scutum hairy behind the spine. Lamina frontalis indistinct; procurus small, partly separated and toothed.

Tubercle, seen from the side, is as long as high; convex above and behind. The front face is the higher. It is broader than high, as seen from the front, and somewhat narrower at the base. The top is deeply grooved, hairy, but hardly ever granular. The diameter of the eyes is as great as the distance between them, and greater than that between their lower edge and the base of the tubercle.

Basal joint of the antennæ smooth. Procurus max. internus two-branched. Femora of the palps both shorter than the patellæ + tibiæ and than the tarsi, and toothed below. Patellæ enlarged towards their extremities, and toothed. Tibiæ, which are almost smooth, are twice and a half as long as broad. The tarsi are hairy, and in the males armed with the usual row of conical teeth at the inner lower edge.

Femora of the legs strongly hairy; the legs very brittle.

F. I = $6\frac{1}{2}$ (30), II = $10\frac{1}{2}$ (?), III = 6, IV = $8\frac{1}{2}$ mm. Body 5-7 mm. The second joint of the antenna is $1\frac{1}{2}$ mm. long.

Colour blackish-brown, the underside and the articulations lighter. Antennæ and last two joints of the palps yellowish-brown; legs brown, but lighter towards their extremities.

A great number of specimens from Darjeeling.

Var. *bispinosa* is similar to the described species, but it has only two spines.

One specimen from Darjeeling.

GAGRELLA FEÆ, *Thor.*

Thorell, (10) p. 648.

The tarsi of the palps (♂) bear the usual row of teeth.

G. NOCTICOLOR, *Thor.*

Thorell, (10) p. 651.

The tarsi of the palps (♂) bear the usual row of teeth.

G. ATRATA, *Stol.*

Stoliczka, (5) 1869, p. 213.

♀. Cephalothorax semilunar. Scutum raised towards the single spine. Free segments, as usual in the pregnant females,

well separated from each other. This fact is mostly evident from above, on account of the granulation. Last segment of the cephalothorax separated both from the scutum and from the rest of the cephalothorax by articulations, as broad as the segment itself. Articulations between the free dorsal segments broader than the segments. Space between the scutum and the free ventral segments very broad, in front as broad as the scutum, which seems to be disposed as a cap on the top of the abdomen. The lateral parts of the free ventral segments well developed, the ventral segments being transversely grooved near their hinder margin. In the young females the shape of the body is as in the males. Cephalothorax presents the usual depressed triangle. Scutum, cephalothorax, first free dorsal segments, the coxæ, the genital plate, and the lateral parts of the first free ventral segments distinctly granular. Middle part of the ventral segments, the last two dorsal, the spine, and the tubercle smooth. Procursus frontales partly united, stout and toothed.

Tubercle very low, convex, and longer than it is high. The top is smooth or on both sides of the groove crested with a few small teeth. In front under the eyes a row of five teeth.

The basal joints of the antennæ bear black granules above. Procursus max. internus two-branched, the upper branch is slender, the lower edge toothed. Femora of the palps bear inwardly a row of short conical teeth, and outwardly a row more irregularly placed. In the middle they are smooth. Both tibiæ and patellæ are toothed, and the tibiæ are twice and a half as long as broad. Tarsi hairy, and sometimes with a few teeth below.

Femora shorter than tarsi and longer than patellæ + tibiæ. Femora of the legs granular.

F. I = 5 (23), II = 8 (44), III = 5 (23), IV = 7 (33) mm. Body 5-7 mm. Second joint of the antenna $1\frac{1}{4}$ mm. long.

Body black. Free ventral segments lighter. Space between the eyes in some specimens light brown, and the cephalothorax beset with lighter spots. Articulations, palps, and antennæ yellowish-brown; legs blackish-brown; the base of the femora lighter.

♂. Femora of the tarsi toothed below, with no difference between the outer and inner row. Tibiæ smooth. Tarsi bear a long row of teeth (30-50), which extends from the base to the

last third part. Legs of different lengths, but generally longer than in the females.

F. I = 5-7 (32), II = 9-10½ (50), III = 5-7 (32), IV = 8-9½ (40) mm. Body 5½ mm.

Space between the eyes and between the tubercle and the front yellowish-brown. Antennæ yellow; the second joint spotted with transverse black bands. Terminal joints of the palps yellow. The femora of the legs show a distinct light-brown ring. Legs usually black, but in two specimens brown. Articulations between the coxæ and the trochanter white.

A great number from Calcutta.

This species is without doubt identical with *G. atrata*, Stol. There is only a slight difference in the granulation; while Stoliczka's species is also granular below.

G. atrata is very similar to *G. Feæ* and *G. nocticolor*, Thor., but especially to *G. varians*, n. sp. It is almost impossible to distinguish the females from each other.

GAGRELLA MAINDRONI, *Sim.*

E. Simon, (16) 1897, p. 296.

G. SIGNATA, *Stoliczka.*

Stoliczka, (5) 1869, p. 214.

G. QUADRIVITTATA, *Sim.*

E. Simon, (9) 1887, p. 115.

G. ÆNESCENS, *Thor.*

Thorell, (10) 1889, p. 643.

With regard to the difference between the palps of the males and the females, consult Thorell. The tarsi of the males bear a row of granules, which begin near the base and are continued towards the extremity. The teeth in the proximal half are placed relatively close to each other, while in the distal part they are distant.

Femur II=21 mm. Thorell has only 11. It is probably a printer's error.

G. LATICLA VIA, *Thor.*

Thorell, (10) 1889, p. 641.

G. RUFESCENS, *Thor.*

Thorell, (10) 1889, p. 645.

GAGRELLA STOLICZKÆ, n. sp.

♀. Cephalothorax somewhat triangular. Body somewhat raised towards the single spine, with granules above flat, not very densely placed. Spine granular. Free dorsal segments, the coxæ, and genital plate bear a few small granules. Free ventral segments, lamina frontalis, and tubercle smooth. Cephalothorax presents the usual depressions. Lamina frontalis well developed; procurus frontales long, enlarged towards their edges, and toothed.

The tubercle, seen from the side, is low and convex. The front is in breadth once and a half its height, and is scarcely narrower towards its base. The top is grooved, hairy, and smooth; but in the front under the eyes there is a row of well-developed teeth, curved upwards. Diameter of the eyes smaller than the distance between them, but larger than the distance between their lower edge and the base of the tubercle.

Basal joint of the antennæ about twice as long as broad and granular above. Procurus max. internus two-branched. Femora of the palps longer than the patellæ and tibiæ, but shorter than the tarsi, toothed below and above at the base of the patellæ. Tibiæ and patellæ spinous. Tibiæ twice and a half as long as broad. Femora of the legs bear small teeth.

F. I=8, II=14 (c. 80), III=7½, IV=11½. The second joint of the antenna is 1½ mm. long. Body 6 mm.

Upperside brown; scutum with transverse black bands to mark the segments. Colour lighter in front and behind. Tubercle yellow between the eyes. Underside lighter. Antennæ and palps yellowish-brown. Trochanters, spine, and base of the femora black. Legs light brown, with darker patellæ. Articulations between trochanters and coxæ white.

One female from Tenasserim.

This species is very similar to *G. rufescens*, Thor.

GAGRELLA MIRABILIS, n. sp.

Cephalothorax almost triangular. Body raised towards the single spine, which presents a very singular appearance. It is short and thick, and its point is bent downwards along its lower part. I do not at all think that this shape is natural, but that it has been caused by violence while undergoing ecdysis. The body bears relatively few, large, and low granules. The spine is also granular. Free ventral segments smooth. Lamina

frontalis small; the procursus frontales distinct, pale, and toothless.

Tubercle rather long and smooth. The front edge is seen to decline; the back is perpendicular. Viewed from the side, it is almost as high as long. Diameter of the eyes almost as large as the distance between them, and a little larger than the distance between their lower edge and the base of the tubercle. Basal joint of the antenna smooth. Procursus max. internus two-branched and smooth, but with the branches almost parallel and bent downwards and forwards. Femora of palps bear long pointed teeth; patellæ and tibiæ bear smaller. Tibiæ three times as long as broad. Femora of the legs spinous.

F. I=10 (50), II=20 (86), III=10 (42), IV=14 (65). The second joint of the antenna is $1\frac{1}{2}$ mm. long. Body 5 mm.

Colour greyish, with an indistinct darker longitudinal band. Cephalothorax with a few dark depressed spots. Coxæ and ventral segments white with darker spots, especially distinct at the coxæ. Extremities of the coxæ and marginal teeth black. Antennæ yellow, palps and legs yellowish-brown.

One mutilated specimen from Mooleyit (500-600 m.).

This animal was mounted as *G. laticlavata*, Thor., in the Zoological Museum of Copenhagen; but as it differs much from the description of *G. laticlavata*, and as Thorell's specimens of *G. laticlavata* are from Thagatá, Jüvá, I think there has been a mistake, and I accordingly establish a new species.

GAGRELLA FLAVIMACULATA, n. sp.

♂. Cephalothorax broad and semicircular. Segments of the scutum (which bears a spine) marked by distinct transverse grooves. Along the margins of the first half part of the abdomen there is a longitudinal groove. Granulation of the upper-side fine and dense; coxæ beset with fewer and longer granules. Free ventral segments smooth. Procursus frontales small, pointed, and smooth.

Tubercle, seen from the side, almost straight above, and longer than high, beset with a few granules. Seen from the front, it is as high as broad, and narrower below. Diameter of the eyes larger than the distance between their lower edge and the base of the tubercle, but smaller than the distance between them. Basal joint of the antennæ smooth. Femora and patellæ of the palps toothed, the tibiæ smooth. Tibiæ three and a half

times as long as broad. Tarsi (σ) bear two rows of teeth: the inner proximal row extends to near the middle, and consists of twelve small flat teeth, placed near to each other with the exception of the last; the outer distal row begins before the middle, but does not reach the extremity, and its few stout teeth are placed very far apart.

Femora of the legs bear small teeth.

F. I=14½, II=20 (c. 100), III=13½, IV=18. Second joint of the antenna 1¼ mm. in length. Body 5½ mm.

Colour black, with the exception of the second joint of the antenna and the terminal joints of the palps, which are brown. On each side of the abdomen are six yellow spots of a waxy material, and the coxæ are covered with a similar mass. The tubercle is brown.

One mutilated male without locality.

GAGRELLA BINOTATA, *Sim.*

Simon, (9) 1887, p. 115.

G. HISTRIONICA, *Thor.*

Thorell, (10) 1889, p. 652.

G. CEYLONENSIS, *Karsch.*

Karsch, (13) 1892, p. 308.

G. CERVINA, *Sim.*

Simon, (9) 1887, p. 115; Thorell, (10) 1889, p. 655.

G. TRIANGULARIS, n. sp.

♀, ♂. Cephalothorax square or triangular. Body higher towards the single spine and sloping gradually behind, its upper surface densely granular. Spine, coxæ, genital plate, and some parts of the cephalothorax less granular; the free ventral segments, lamina, and procursus frontales quite smooth. Depressions of cephalothorax little marked. Lamina frontalis well developed, with slender and pointed procursus.

Ocular tubercle convex and almost as high as long; when viewed from the side, its front face higher and more sloping. The tubercle is, on each side of the groove, surmounted by larger and smaller teeth, which are continued as a row of granules under the eyes. Seen from the front, it is almost as

high as broad, and narrower towards its base. Diameter of the eyes as large as the distance between them, and much larger than the distance between their lower edge and the base of the tubercle. Basal joint of the antennæ smooth. "Fingers" in some specimens irregularly toothed; the labrum (epistoma) in some club-like. The procurus max. internus two-branched and toothed.

Femora of the palps strongly spinous below. Teeth arranged in two rows—an inner of flat and stout, an outer of more or less pointed spines, but not in a regular row. Patellæ spinous, and with a small inner apophysis. Tibiæ granular and twice and a half as long as broad. Tarsi of the females hairy and smooth; and in one specimen with indistinct tarsal teeth, placed in two rows. Tarsi of the males, with regard to their dentation, similar to *G. flavimaculata*. The lower side has two rows of teeth—a proximal row beginning near the base and extending almost to the middle near the inner side; it consists of c. 20 small flat teeth, which are placed near to each other with the exception of the last. The distal row along the outer margin begins near the middle and extends to the extremity; it consists of c. 10 small pointed teeth, placed far apart.

Legs long, stiff, and with small teeth.

F. I = $8\frac{1}{2}$ (35), II = 13 (62), III = 8 (33), IV = $10\frac{1}{2}$ (45) mm. Body $4\frac{1}{2}$ mm. Second joint of the antenna 1 mm. long.

Colour red-brown, with larger or smaller irregular yellow spots; and sometimes there runs through the abdomen a darker longitudinal band. Cephalothorax bears a yellow triangular spot, turned forwards and encompassing the tubercle. This triangle has two darker spots on each side and a pointed narrow one in front. Ventral segments and coxæ lighter. Spine blackish-brown. Antennæ and the palps yellow. Legs yellowish-brown.

Var. FUSCA.

Body black, with the usual yellow triangle and a long yellow spot on each side of the spine. Tubercle black, but yellow between the eyes. Last segments of the cephalothorax brown with yellow spots. Coxæ brown. Ventral segments, with antennæ, palps, and legs, yellowish-brown.

The missionary Mr. Löventhal has captured many specimens (only two of the variety) at Vellore, near Madras.

GAGRELLA IMPERATOR, n. sp.

♀. Cephalothorax somewhat semilunar. Scutum bears two spines, placed on the first and on the second segment; the foremost shorter and directed forwards and upwards; the hindmost more perpendicular. The body is higher towards the spine, and behind it slopes gradually. It is very dilated in the gravid females, and the articulations are well developed. The body and, especially, the top of the scutum are finely granular above. Cephalothorax less densely granular; the coxæ and the spine with fewer and larger granules. Ventral segments and articulations smooth. Cephalothorax presents the usual depressions. Frontal eminence well marked; lamina frontalis distinct and the præcursus rather long, separated at their outer ends, and spinous.

Tubercle low and, seen from the side, as high as long. The front area is higher than the back and not perpendicular. Seen from the front, it is broader than high and narrowed at its base. Five small teeth on each side of the groove. Diameter of the eyes larger than the distance between their lower edge and the base of the tubercle, but less than their distance apart. Basal joint of the antennæ almost smooth above. Præcursus max. internus two-branched and yellow, the lower edge with a few granules.

Femora of the palps shorter than the tarsi and longer than the patellæ + tibiæ. Femora toothed below. Tibiæ twice and a half as long as broad. Both tibiæ and patellæ are granular, chiefly on their inner areas.

Femora of the legs, as usual, granular. Tibiæ 2 have false articulations.

F. I=8 (35), II=17 (c. 80), III=8½ (35), IV=12 (45). Second joint of the antenna 1¼ mm. long. Body 8½ mm.

Colour a little different in the three specimens—one completely yellow, and soft as if in the condition for ecdysis; the two others light brown, but more or less spotted with yellow. Spines somewhat darker. Coxæ brown.

Three specimens (♀) from the Andamans.

Var. DENTATA.

Granules larger. Tubercle surmounted by large teeth and provided with a row of granules under the eyes. Basal joint of the antennæ granular.

One female from the Andamans.

Var. UNISPINOSA.

♀. Scutum has only one long spine; in one specimen there is a little spine in front of the long one. Tubercle smooth. Legs long.

F. I=12 (60), II=26, III=11, IV=16.

Colour brown with black spots, or with the last segments of the cephalothorax darker. Antennæ yellow. Palpi yellowish-brown. Legs brown.

♂. Tubercle bears a few teeth above; tarsi bear an inner row of about 20 teeth, placed rather far apart. Cephalothorax black or blackish-brown; the scutum brown with a black spine.

Three free dorsal segments black in the front, yellow-brown behind. Underside blackish.

The Danish 'Galathea' Expedition has taken three specimens from the "Little" and three from the "Large" Nicobar.

Though the var. *unispinosa* is somewhat different from the main type, I prefer at present to place them in the same species. The characters which distinguish them seem to be fluctuating, as, for instance, the length of the legs, the armature of the scutum, and the tubercle. When we have acquired richer material from the different islands of the two groups, it will be possible to estimate better the value of these differences.

GAGRELLA PLEBEIA (*Thor.*).

Thorell, (10) 1889, p. 659. (*Melanopa plebeia.*)

Lateral parts of the ventral segments partly granular. Tarsi of the males smooth. The two specimens, which are mounted as Thorell's original specimens in the Museum at Copenhagen, are very different with regard to the femora of the legs. The femora in one resemble those of an ordinary *Gagrella*, but in the other they are very odd.

The femora of especially the fourth pair of legs are very thick and gradually thicken from the base to the extremity, the outer and under sides are strongly curved inwards; and it is probably such femora which suggested to Thorell the genus *Melanopa*.

GAGRELLA TRISTIS (*Thor.*).

Thorell (10) 1889, p. 662. (*Melanopa tristis.*)

Palps of the males with the usual tarsal row of teeth.

GAGRELLA HANSENI, n. sp.

♂. Cephalothorax triangular. Body much raised towards the single spine, the point of which is curved backwards. Free ventral segments transversely grooved, whereby the back margin becomes more marked. Lateral parts well developed, and their hindmost (non-granular) parts merge into the corresponding part of the central one.

Body beset with large, dense granules. The foremost part of the lateral pieces of the ventral segments bears smaller granules, and the genital plate bears very few and large. Cephalothorax presents a well-marked depressed triangle. Lamina frontalis indistinct; procursus stout, partly united, and toothed.

Tubercle low, seen from the side it is somewhat longer than high. The top is deeply grooved, but smooth. A row of granules under the eye. The diameter of the eyes is as large as the distance between them, and larger than the distance between their lower edge and the base of the tubercle.

Basal joint of the antennæ smooth above. Proc. max. internus two-branched and low, the upper branch pointed and slender, the lower stout and obtuse. The lower edge granular. Femora and patellæ of the palps toothed. Tibiæ almost smooth, and twice and a half as long as broad. The tarsi bear a long row of teeth, which are stout, obtuse, and pressed downwards. Femora of the legs spinous; false articulations of the second pair of the tibiæ very distinct.

F. I = 4 (22), II = 7 (35), III = 4 (22), IV = $6\frac{1}{2}$ mm. Body 5 mm. Second joint of the antenna 1 mm. long.

Body black. Antennæ, the two terminal joints of the palps, and the mouth-organs yellowish-brown. Legs black, with the exception of a brown ring near the base of the femora.

One male from Todaspoor.

GAGRELLA VARIANS, n. sp.

♀. Cephalothorax almost semilunar. Body a little raised towards the single short spine, finely and densely granular, with the exception of the top of the spine, the free ventral segments, and the articulations. Procursus frontales united, smooth, and toothed.

Tubercle low, convex, and longer than high; seen from the front it is broader than high. The top on each side of the low groove is provided with small teeth; others are placed under

the eyes. Diameter of the eyes as large as the distance between them.

Basal joint of the antennæ granular above. Procursus max. internus two-branched. Femora of the palps toothed below and partly above. Patellæ short and toothed. Tibiæ twice as long as broad, and with small teeth below. Femora of the legs spinous; tibiæ of the second pair with very distinct false articulations. Second pair of legs very slender.

F. I = 4-5 (c. 22), II = $6\frac{1}{2}$ -8 (35), III 4-5 (22), IV = 6-7 (28) mm. Body 6 mm. Second joint of the antenna 1 mm. long.

Colour black, space between the eyes lighter. Antennæ and the palps yellowish-brown, spotted with black. Femora and the tarsi of the legs light brown, tibiæ and patellæ black.

Two females from Berbhoom District.

The described female is very similar to *G. atrata*. Its common aspect and colour are a little different: the femora are more slender.

Var. DENTATA.

♀. Upperside and coxæ beset with large dense granules. Spine almost granular to its point. Tubercle on each side of the deep groove crested with a row of rather long teeth.

Colour blackish-brown, with the cephalothorax and especially the space between the eyes lighter. Ventral segments and the coxæ light brown. Antennæ and the terminal joints of the palps yellow. Legs more or less brown, with darker patellæ and tibiæ.

One female from Berbhoom.

♂. Body beset with dense and large granules. Tubercle surmounted by a row of strong granules, continued under the eyes. Tibiæ of the palps three and a half times as long as broad. Tarsi with the usual row of strong conical teeth.

Body 5 mm.

Colour brown, with black spots; most distinct are the transverse spots of the scutum which mark the segments. Spine black. The single specimen has a longitudinal darker band through the scutum. Space between the eyes yellowish. Ventral segments lighter. Antennæ and the palps yellow. Legs brown.

Two specimens from Berbhoom.

I have great doubt as to the limitation of this species, since the females are in most characters similar to *G. atrata*, Stol.

On the other hand, it seems unnatural for me to refer it to another species than that represented by the male; and as this is very well characterized, I have found it most correct to grant the species the afore-named limitation.

GAGRELLA BISPINOSA, *Karsch.*

Karsch, (13) 1892, p. 309.

G. MONACANTHA (*Herbst.*).

Herbst, (1) 1798, p. 19.

I think it impossible to identify this species from the description.

SCOTOMENIA, *Thor.*, 1889.

SCOTOMENIA CETRATA, *Thor.*

Thorell, (10) 1889, p. 665.

With regard to the other genera described from India, I refer to the following papers:—

Thorell, 10.

Simon, 8.

C. L. Koch, 2.

On full consideration it seems natural for me to refer the genera *Syleus*, *Thor.*, *Systenocentrus*, *Sim.*, and *Oncobunus*, *Thor.*, to the same genus.

Besides the species herein described, I have had some young specimens which it has been impossible to define. Two large specimens from Punkabari were very well marked. They had relations both with *Gagrella* and *Liobunum* (the marginal projections, for instance, were wanting); but it was impossible to decide whether they were full-grown or not. As their genus was thus dubious, I have not described them.

SUPPLEMENT.

GAGRELLA SEPIA, *Loman.*

J. C. C. Loman, (14) 1894, p. 8.

♀. Spine with only few granules at the base. A triangle in front, including the frontal eminence, is smooth, but beset with a row of three large granules along the frontal margin. Front and back of the high tubercle perpendicular. The top is convex,

provided with a row of rather strong teeth. The transverse row of hairy granules on the ventral segments wanting.

♂. Four frontal granules, not placed in a single row. A small tubercle on the first abdominal segment before the spine. Tarsi of the palps with the usual row of teeth.

In all other respects this species is similar to *G. sepia*, Lom., and as it was taken by Loman at the same locality, it must be regarded as the same species.

GAGRELLA SPLENDENS, n. sp.

♂. Cephalothorax almost semicircular. Body raised towards the single spine, sloping gradually behind. It is granular, with dense and low granules above, the coxæ bearing a few larger granules. Ventral segments smooth. Frontal eminence well marked. Lamina frontalis distinct, broad, and merging on each side into the small but stout procurus frontales.

Tubercle, seen from the side, rather low, convex, and as high in front as behind. Seen from the side, broad and scarcely narrower towards its base. It is granular on both sides of the groove. Diameter of the eyes larger than the distance between their lower edge and the base of the tubercle, and smaller than the distance between them.

Basal joint of antennæ smooth. Procurus max. internus two-branched and pale; branches short, and lower edge beset with a row of granules. Femora of the palps with a few granules below, arranged in an outer and an inner row, and above towards their extremities. Patellæ short, thinner at their bases, and beset with a few granules. Tibiæ longer than the patellæ, twice as long as broad, cylindrical, and very thick—as thick as the femora (compare the male of *G. ænescens*). They are somewhat thinner towards their extremities and base, and a little convex below; underneath they are hairy with long stiff hairs, and above only with short. The tibiæ are only a little longer than the patellæ. Tarsi hairy and much thinner than the tibiæ, with a row of comparatively few teeth, of which the 13 proximal are placed near to each other from the base to the middle, and the 4 distal are widely separated.

Femora of the legs toothed. Tibiæ II have false articulations.

F. I = $11\frac{1}{2}$ (42), II = $17\frac{1}{2}$ (80), III = $10\frac{1}{2}$ (41), IV = 15 (60). Second joint of the antenna $1\frac{1}{2}$ mm. long. Body 5 mm.

Colour black above, with a beautiful metallic gloss. Between

the tubercle and the front a longitudinal yellow band, broader behind, and including a black pointed spot, starting from the front, the point being turned backwards. Near the margin of the cephalothorax are other yellow spots. Along the margins of the scutum there are three such spots on each side. Coxæ yellowish-brown, with darker spots. Free ventral segments yellowish, with darker spots. Legs brown, with the trochanters, patellæ, and tibiæ black. Antennæ and palps yellow. Yellow spots larger in another specimen, and the hinder margins of the free dorsal segments are yellow.

Mr. Schönau has taken two males at Woosung (China?).

This species is similar to *G. ænescens*, Thor., but the colour is very different and the legs are stronger.

BIBLIOGRAPHY.

1. J. F. W. HERBST.—*Natursystem der ungeflügelten Insekten*. Zweites Heft. Berlin, 1798, p. 19.
2. C. L. KOCH.—*Die Arachniden*, vol. xvi. (p. 61, fig. 1541). Nürnberg, 1848.
3. C. L. DOLESCHALL.—*Bijdrage tot de Kennis der Arachniden van den Indischen Archipel*. *Natuurkundig Tijdschrift voor Nederlandsche Indië*, xiii. (ser. 3, iii.), 1857.
4. C. L. DOLESCHALL.—*Bijdrage tot de Kennis der Arachniden van Ind. Arch.* *Acta Soc. Scient. Indo-Neerlandicæ* (Verhandl. d. Natuurkundig Vereen in Nederl. Indië), vol. v., 1859.
5. F. STOLICZKA.—*Contributions towards the Knowledge of the Indian Arachnoidea*. *Journal of the Asiatic Society of Bengal*, vol. xxxviii. part ii., Phys. Science, No. 4, 1869, pp. 212–215.
6. T. THORELL.—*Descrizione di alcune specie di Opilioni dell' Archipelago Malese*. *Annali del Museo Civico di Storia Naturale di Genova*, vol. ix., 1876, pp. 115–123.
7. E. SIMON.—*Etudes Arachnologiques*, 5^e Mém. ix. *Arachnides recueillis aux îles Philippines, etc.* *Ann. de la Soc. Ent. de France*, 2^e sér. vii., 1877, p. 96.
8. E. SIMON.—*Arachnides recueillis au Cambodja*. *Actes de la Société Linnéenne de Bordeaux*, 1886, 4^e série, xl. pp. 137–166.